

What is claimed is:

1. A Twin Magnet Loop (hereinafter called TML) vibrator-speaker multifunctional transducer, which is integrated with an inner and an outer magnetic loop, can be used as both a vibrator and a speaker. The said TML vibrator-speaker multifunctional transducer is formed by a flange bowl-shaped magnetic transfer, a cylindrical magnet, a disc-shaped pole core placed on the cylindrical magnet and centered in the bowl-shaped flange magnetic transfer; an annular pole piece, as well as an annular magnet overlaid the annular pole piece and placed under the outer ring of the flange bowl-shaped magnet.
2. The TML vibrator-speaker multifunctional transducer of claim 1, wherein said the disc-shaped pole core, the flange bowl-shaped magnetic transfer, the annular pole piece, the cylindrical magnet and the annular magnet are connected with the housing supporting base via a resilient plate such that either of the inner and the outer loops of the TML can be used to convert signal into sound, if one loop is used to produce sound then the other one can be used to provide driving magnetic field for the vibrator.
3. The multifunctional transducer as described in Claim 2, wherein a vibrating coil is inserted into the air gap of the magnetic loop for vibrating functions; a rigid sheet is connected with the vibrating coil and integrated with the supporting housing.
4. The multifunctional transducer as described in Claim 2, wherein a voice coil connecting with a vibrating diaphragm is inserted into the air gap of the magnetic loop for sound functions.
5. The multifunctional transducer as described in Claim 4, wherein the vibrating diaphragm used to emit sound can be a polyester film, a perm alloy plate or other voice diaphragm materials.
6. The multifunctional transducer as described in Claim 2, wherein the inherent resonant frequency of the device, which is composed of the magnetic loop, the

voice coil and the vibrating diaphragm for sound function, is preset a value above 400HZ.

7. The transducer as described in Claim 3, wherein the inherent resonant frequency of the vibrating system, which is comprised of the vibrating coil for performing vibrating function, the resilient plate and the components of the entire twin magnetic loop, is between 100-200HZ.
8. The multifunctional transducer as described in Claim 1, wherein the two magnets composing the said TML may be elliptic column and elliptic ring in shape; then the related magnetic intervals between the said magnets are elliptic rings in shape as well; and correspondently, the voice coil, the vibrating coil, the pole core, the magnetic transfer, the annular pole piece and the resilient plate are also elliptic in shape too.